

Milling Cutters (Special Purpose)

H230 to H243



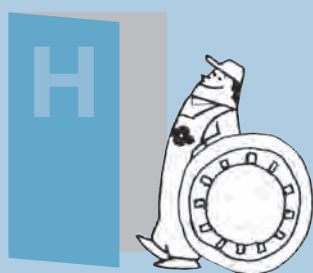
Milling Cutters
(Special Purpose)

H

Goal Mill

High-Feed

Quick
Change



For High-Feed Cast Iron	SEC-Goal Mill Series	H230
	GFX(C) 13000 Type	H232
	GFX 16000 Type	H233
	GRHNM 17000 Type	H234
	GRHNF 17000 Type	H235
For High-Feed Cast Iron	SEC-High-Feed Mill Series	H236
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For High-Feed Milling of Non-Ferrous Alloys/ Thin Workpieces	APV 5000 Type	H241
QC System	IGETALLOY Quick Change System	H242
	Applicable Cutters for QC-System	H243

Stock Markings and Symbols

- mark: Standard stocked item
- mark: To be replaced with the new item featured on the same page
- ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

- * mark: Semi-standard stock (please confirm stock availability)
- mark: Stock or planned stock (please confirm stock availability)
- Blank: Made-to-order item
- mark: Not available

GFX Type/GRHN Type

Milling Cutters
(Special Purpose)

H

Goal Mill

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General Features

SEC-Goal Mill Series cutters have been developed for high-efficiency machining and finishing of cast iron parts (such as engine cylinder blocks and transmission cases).


Features


- Special cutters for high-feed machining of cast iron
- Multi-teeth design (approx. 3 teeth per inch)
- Finishing cutters feature an easy-to-use function for edge runout fine adjustment
- Highly reliable cutter with tangential inserts for finishing
- Chipbreaker type inserts for low cutting force

Product Range


Series Code	GFX	GRHN
Applications	Finishing	Roughing
Surface Finish	< Ra3.2	< Ra12.5
Appearance		


Refer to the QC system on pages H242 to H243 for details and specifications on the two-piece mounting system and adapter.

Work Material	Applications	High-speed Finishing	Finishing to General Cutting	Interrupted Cutting	Applicable Cutter
	Finishing	BN7000		ACK260	GFX Type

Work Material	Applications	Light Cutting	General Cutting	Heavy Interrupted Cutting	Applicable Cutter
	Roughing	ACK100		ACK200	GRHN Type

Grade Characteristic Values

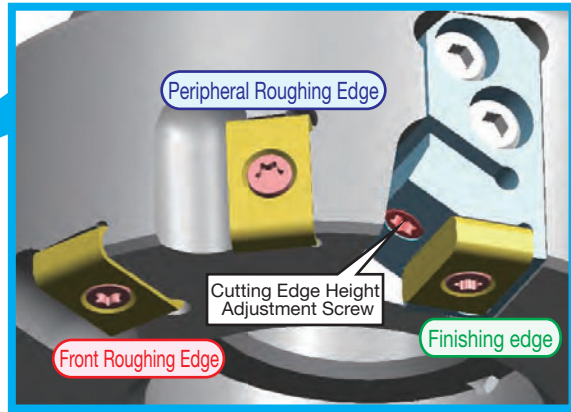
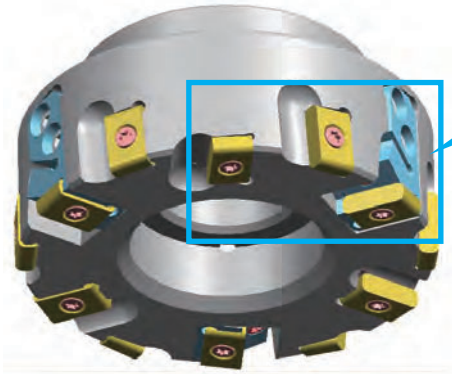
Work Material	Grade	Hardness	Transverse Rupture Strength (GPa)	Main Coating Components	Coating Thickness (μm)	Features	
	Coated Carbide	ACK100	92.0HRA	2.4	Super FF Coat	6	· Adopts a high-strength ultra-hard substrate and Super FF Coating, a high-speed milling grade with excellent wear resistance.
		ACK200	91.7HRA	2.5	Super FF Coat	6	· A grade that employs a tough carbide substrate and thin Super FF Coating to provide superior thermal crack and wear resistance.
		ACK260	92.6HRA	2.6	Super ZX Coat	3	· From finishing to general machining of cast iron and ductile cast iron. · Employs new super multi-layered PVD coating consisting of nanometre-thin layers of TiAlN and AlCrN. Combines with a tough, thermal-resistant substrate for long and stable tool life.
		ACK280	91.7HRA	3.0	Super ZX Coat	3	· For heavy interrupted cutting or wet cutting of cast iron and ductile cast iron. · Employs new super multi-layered PVD coating consisting of nanometre-thin layers of TiAlN and AlCrN coupled with an ultra-tough substrate for superior fracture resistance and thermal crack resistance during wet cutting.
		ACK300	91.4HRA	3.3	Super ZX Coat	3	· General-purpose to interrupted milling of cast iron and ductile cast iron. · Employs PVD coating consisting of multiple nanometre-thin layers. Provides excellent fracture resistance when combined with a fine-grained tough substrate.
	CBN	BN7000	41.0HV to 44.0HV	1.8 up to 1.9	—	—	· Exhibits wear and fracture resistance in cutting of cast iron and exotic alloys.

BN7000 Characteristic Values 

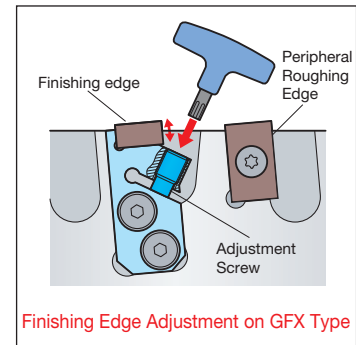
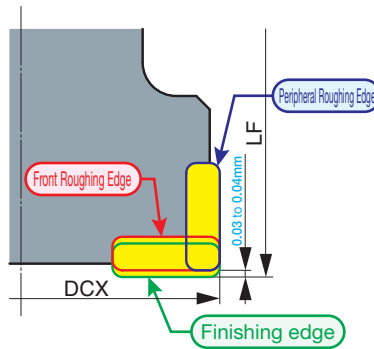
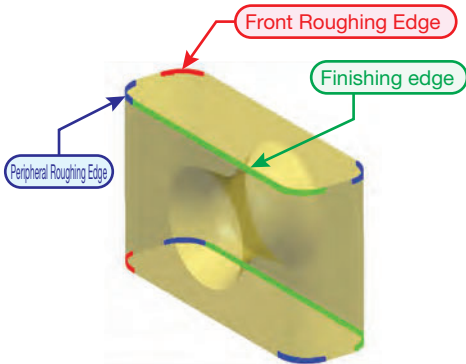
ACK100, ACK200, ACK300 Characteristic Values 

■ **GFX Type Features**

- Simple Runout Adjustment



- Economical 8-Cornered Insert



Finishing edge runout can be adjusted by 5 μm or less simply by turning the adjustment screw.

Arranging the same number of vertical and horizontal inserts allows 8-corner configuration.

■ **GFX Type Finishing Edge Runout Adjustment Procedure**

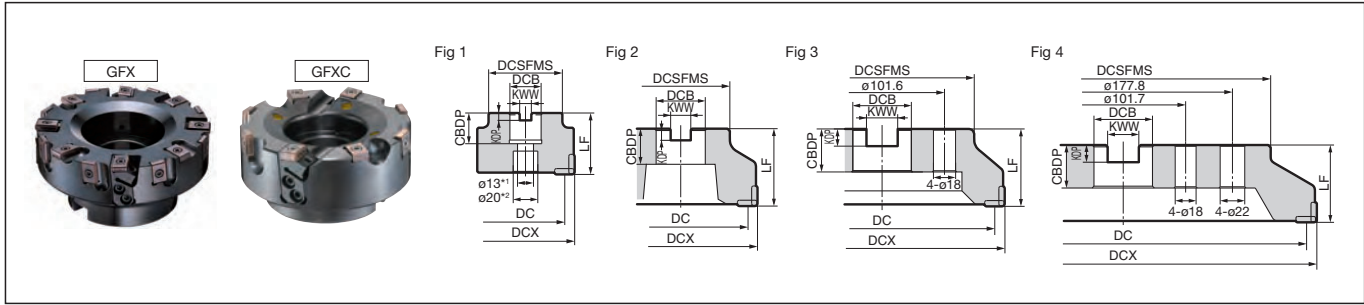
<p>(1) Insert Assembly</p> <p>Attach insert to cutter body. When doing so, check that the cartridge adjustment screw is completely loose.</p>		<p>(4) Adjust Finishing Edge Height</p> <p>Select a finishing edge and adjust with the adjustment screw so that the edge protrudes around 0.03 to 0.04 mm further than (3).</p>
<p>(2) Check Roughing Edge Runout</p> <p>Measure face runout of the roughing edge and identify the cutting edge that protrudes the most.</p>		<p>(5) Adjust Runout</p> <p>With the finishing edge from (4) as a reference, adjust the position of the other finishing edges so that runout is equal to or less than 5 μm.</p>
<p>(3) Set Reference Roughing Edge</p> <p>Set the cutting edge height of the insert identified in (2) as "0".</p>		<p>⚠</p> <ul style="list-style-type: none"> Always adjust finishing edge height before use. Using the tool with the adjustment screw loose may result in tool breakage. <p>* Adjusting finishing edge runout to 2 μm or less will result in a better machined surface.</p>

GFX 13000/GFXC 13000 Type



Rake Angle	Radial	-8°
	Axial	-5°

1 mm $\frac{89}{89}$ to $\frac{30}{30}$



Body (Standard Pitch)

Dimensions (mm)

Cat. No.	Stock		Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Total No. of Teeth	Number Of Finishing Edges	Effective No. of Teeth	Weight (kg)	Fig
	R	L													
GFX 13080R/L	●		*80	67.3	60	50	25.4	9.5	6	25	8	2	8	1.4	1
13100R/L	●		100	87.3	70	50	31.75	12.7	8	32	12	3	12	1.9	2
13125R/L	●		125	112.3	80	63	38.1	15.9	10	38	16	4	16	3.3	2
13160R/L	●		160	147.3	120	63	50.8	19	11	38	20	5	20	6.4	2
13200R/L	●		200	187.3	150	63	47.625	25.4	14	35	28	7	28	7.8	3
13250R/L	●		250	237.3	200	63	47.625	25.4	14	35	36	9	36	12.6	3
13315R/L	●		315	302.3	240	80	47.625	25.4	14	35	44	11	44	20.2	4

Body (Coarse Pitch)

Dimensions (mm)

Cat. No.	Stock		Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Total No. of Teeth	Number Of Finishing Edges	Effective No. of Teeth	Weight (kg)	Fig
	R	L													
GFXC13063RS/LS	●		63	50.3	50	50	22	10.4	6	20	4	1	4	0.9	1
GFXC13080R/L	●		*80	67.3	60	50	25.4	9.5	6	25	6	1	6	1.4	1
13100R/L	●		100	87.3	70	50	31.75	12.7	8	32	8	2	8	1.9	2
13125R/L	●		125	112.3	80	63	38.1	15.9	10	38	10	2	10	3.3	2
13160R/L	●		160	147.3	120	63	50.8	19	11	38	12	3	12	6.4	2
13200R/L	●		200	187.3	150	63	47.625	25.4	14	35	16	4	16	7.8	3
13250R/L	●		250	237.3	184	63	47.625	25.4	14	35	20	5	20	9.4	3
13315R/L	●		315	302.3	240	80	47.625	25.4	14	35	24	6	24	17.9	4

*1 GFXC13063RS/LS is ø11. (Fig 1)

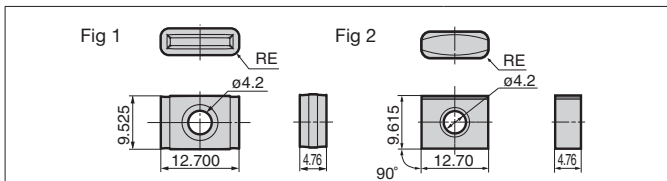
*2 GFXC13063RS/LS is ø18. (Fig 1)

Inserts are sold separately.

For securing the ø80 mm cutters to the arbors marked with *, use a JIS B1176 hex socket bolt (M12 x 30 to 35 mm).

Insert

Dimensions (mm)



Grade Classification		Coated Carbide	Carbide	CBN			
High-speed Finishing				K			
Process	Finishing/Medium Cutting	K					
	Roughing	K	K				
Cat. No.	ACK260	ACK280	ACK300	H10E	BN7000	Corner Radius RE	Fig
LNGX 130508PNFN-W	●	●		●	—	0.8	1
130516PNFN-W	●	●		●	—	1.6	1
130516PNTN-W	—	—	—	—	●	1.6	2

Parts **H233**

● Permissible Spindle Speed for CBN Inserts by Size

H233

Precautions for Use of GFXC Type

GFXC Type can be used with fewer teeth attached. In this case, only mount inserts to the mounting positions with markings. Remove the screws from the mounting positions where inserts will not be mounted.



GFXC type with total no. of teeth and when mounting reduced no. of teeth.

Cat. No.	Diameter DC	Total No. of Teeth	Reduced No. of Teeth	Cat. No.	Diameter DC	Total No. of Teeth	Reduced No. of Teeth
GFXC 13063RS/LS	63mm	4	2	GFXC 13160R/L	160mm	12	6
13080R/L	80mm	6	2	13200R/L	200mm	16	8
13100R/L	100mm	8	4	13250R/L	250mm	20	10
13125R/L	125mm	10	4	13315R/L	315mm	24	12

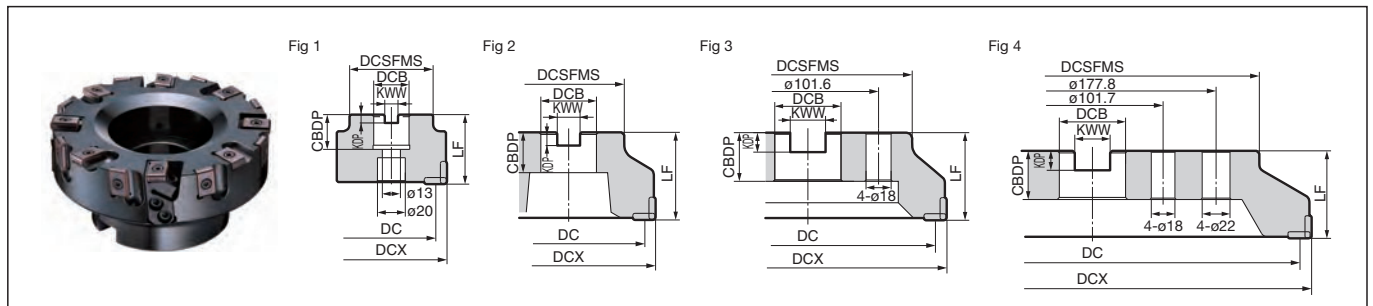
The number of inserts mounted should always match either the "Total No. of Teeth" or "Reduced No. of Teeth" quantities.

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Insert Grade
K	Cast Iron	250HB	200- 250 - 350	0.1- 0.3 -0.5	ACK260
K	Cast Iron	250HB	800- 1,000 -1,200	0.1- 0.3 -0.5	BN7000

Note Calculate cutting conditions based on effective no. of teeth. The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Rake Angle	Radial	-8°
	Axial	-5°



Body

Dimensions (mm)

Cat. No.	Stock		Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Total No. of Teeth	Number Of Finishing Edges	Effective No. of Teeth	Weight (kg)	Fig
	R	L													
GFX 16080R/L			80	64.1	60	50	25.4	9.5	6	25	8	2	8	1.4	1
16100R/L	●		100	84.1	70	50	31.75	12.7	8	32	12	3	12	1.9	2
16125R/L	●		125	109.1	80	63	38.1	15.9	10	38	16	4	16	3.3	2
16160R/L	●		160	144.1	120	63	50.8	19	11	38	20	5	20	6.4	2
16200R/L	●		200	184.1	150	63	47.625	25.4	14	35	28	7	28	7.8	3
16250R/L			250	234.1	200	63	47.625	25.4	14	35	36	9	36	12.6	3
16315R/L			315	299.1	240	80	47.625	25.4	14	35	44	11	44	20.2	4

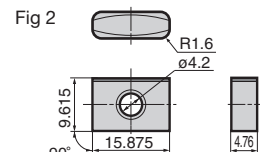
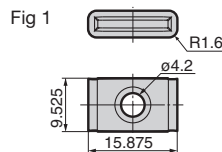
Inserts are sold separately.

For securing the ø80 mm cutters to the arbors marked with *, use a JIS B1176 hex socket bolt (M12 x 30 to 35 mm).

Insert

Dimensions (mm)

Grade Classification		Coated Carbide	Carbide	CBN	Fig		
Process	High-speed Finishing			K			
	Finishing/Medium Cutting	K					
	Roughing	K	K				
Cat. No.		ACK260	ACK280	ACK300	H10E	BN7000	
LNGX 160516PNFN-W		●	●	●	●	—	1
160516PNTN-W		—	—	—	—	—	2



Parts

Cartridges		Wrench	Adjustment	Wrench	Flat Insert	Wrench	Cap Screw/Radial Cartridge		Anti-seizure	
(For 13000)	(For 16000)	(For Cartridges)	Screw	(For Adjustment Screw)	Screw		(For GFXK4R/L)	(For GFVK5R/L)	Cream	
GFXK4R/L	GFVK5R/L	TH030	BTD05F09	LT15	BFTX03588	3.0	TTX15W	BX0414	BX0418	SUMI-P

Finishing cartridges do not come assembled with inserts.

● Permissible Spindle Speed for CBN Inserts by Size

Max. Dia. DCX (mm)	Allowable Spindle Speed (min ⁻¹) n max.	Max. Dia. (mm) DCX	Allowable Spindle Speed (min ⁻¹) n max.
ø63	6,000	ø160	2,300
ø80	4,700	ø200	1,900
ø100	3,800	ø250	1,500
ø125	3,000	ø315	1,200

Recommended Cutting Conditions

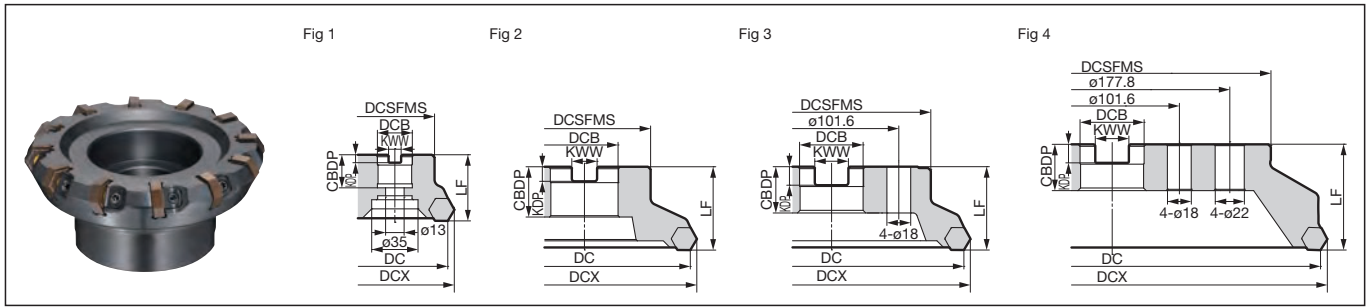
ISO	Work Material	Hardness	Cutting Speed v _c (m/min) Min. - Optimum - Max.	Feed Rate f _z (mm/t) Min. - Optimum - Max.	Insert Grade
K	Cast Iron	250HB	200- 250 - 350	0.1- 0.3-0.5	ACK260
K	Cast Iron	250HB	800- 1,000 -1,200	0.1- 0.3-0.5	BN7000

Note Calculate cutting conditions based on effective no. of teeth. The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

GRHNM 17000 Type



Rake Angle	Radial	-6°30' to -5°	
	Axial	-6°	



Body

Cat. No.	Stock		Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBBDP	Total No. of Teeth	Weight (kg)	Fig
	R	L											
GRHNM 17080R/L	●		*80	90.5	60	50	25.4	9.5	6	25	8	1.2	1
17100R/L	●		100	110.5	70	50	31.75	12.7	8	32	10	1.7	2
17125R/L	●		125	135.5	80	63	38.1	15.9	10	38	12	2.9	2
17160R/L	●		160	170.5	100	63	50.8	19.1	11	38	16	4.5	2
17200R/L	●		200	210.5	150	63	47.625	25.4	14	35	20	7.3	3
17250R/L	●		250	260.5	200	63	47.625	25.4	14	35	24	13.1	3
17315R/L	●		315	325.5	240	80	47.625	25.4	14	35	28	24.5	4

Inserts are sold separately.
 For securing the ø80 mm cutters to the arbors marked with *, use a JIS B1176 hex socket bolt (M12 x 30 to 35 mm).

Insert

Grade Classification		Coated Carbide			Fig
Process	High-speed/Light	K	K		
	General-purpose	K	K		
	Roughing			K	
Cat. No.		ACK100	ACK200	ACK300	
HNEF 100608DNEN-G		●	●	●	1

Parts

Double Screw	Clamp Plate	Wrench	Anti-seizure Cream
WB6-20T	GRHNW	TTX20	SUMI-P

Recommended Cutting Conditions

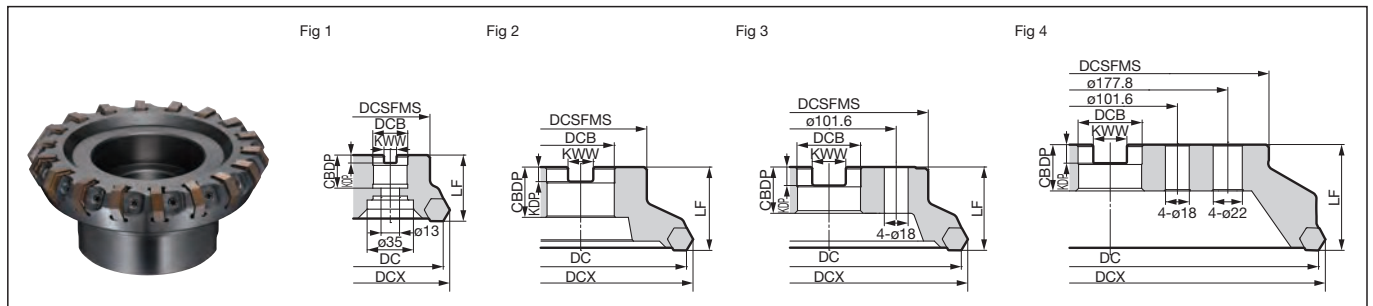
ISO	Work Material	Hardness	Cutting Speed v_c (m/min)	Feed Rate f_z (mm/t)	Insert Grade
K	Cast Iron	250HB	200-250-300	0.15-0.23-0.30	ACK200

Note Calculate cutting conditions based on effective no. of teeth.
 The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

GRHNF 17000 Type



Rake Angle	Radial	-6°30' to -5°	6mm	60°
	Axial	-6°		



Body

Cat. No.	Stock		Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDBP	Total No. of Teeth	Weight (kg)	Fig	Dimensions (mm)	
	R	L													
Inch	GRHNF 17080R/L	●	*80	90.5	60	50	25.4	9.5	6	25	10	1.2	1		
	17100R/L	●	100	110.5	70	50	31.75	12.7	8	32	14	1.8	2		
	17125R/L	●	125	135.5	80	63	38.1	15.9	10	38	18	2.9	2		
	17160R/L	●	160	170.5	100	63	50.8	19.1	11	38	22	4.5	2		
	17200R/L	●	200	210.5	150	63	47.625	25.4	14	35	28	7.3	3		
	17250R/L	●	250	260.5	200	63	47.625	25.4	14	35	36	13.1	3		
	17315R/L	●	315	325.5	240	80	47.625	25.4	14	35	44	24.5	4		

Inserts are sold separately.

For securing the ø80 mm cutters to the arbors marked with *, use a JIS B1176 hex socket bolt (M12 x 30 to 35 mm).

Insert

Grade Classification		Coated Carbide			Fig
Process	High-speed/Light	K	K		
	General-purpose	K	K		
	Roughing			K	
Cat. No.		ACK100	ACK200	ACK300	Fig
HNEF 100608DNEN-G		●	●	●	1

Parts

Double Screw	Clamp Plate	Wrench	Anti-seizure Cream
WB6-20T	6.0 GRHNW	TTX20	SUMI-P

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Optimum - Max.	Feed Rate f_z (mm/t) Min. - Optimum - Max.	Insert Grade
K	Cast Iron	250HB	200-250-300	0.15-0.23-0.30	ACK200

Note Calculate cutting conditions based on effective no. of teeth.
The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Milling Cutters
(Special Purpose)

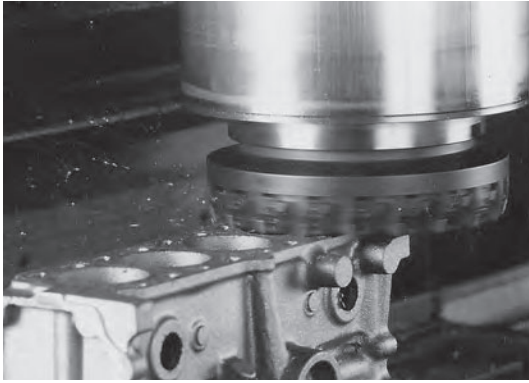
H

Goal Mill

High-Feed

Quick Change

High-Feed Facemills



General Features

Sumitomo Electric Hardmetal SEC-High-Feed facemills achieve high-performance milling particularly suited for cast irons, aluminum and light alloys. Cutting edge reference system design is rugged, simple and easy to maintain. A range of facemills are available to suit various applications.

Series

- Dedicated cutter for high-feed machining of cast iron and light alloys.

Common Features

- Cutting edge reference system provides simple, easy and fast runout management. (→H237)
- Fine pitch cutter design (*3 teeth per inch) is ideal for high-efficiency machining.

*Cutting edge to O.D. inch conversion (example: $\phi 100 \approx 4$ inches $\times 3 = 12$ teeth)

- An excellent range of cutter designs and insert grades to suit various applications.
- Quick change system enabling fast replacement of cutter. (→H242)

	Cat. No.	Specifications	Applicable Cutter Size
(1)	F Type/NF Type*	Quick Change System	$\phi 160$ mm and below
(2)	2-piece type	2-piece set indication	$\phi 200$ mm and above
(3)		Two-piece cutter with centre bolt	

* The Quick Change System NF type is a made-to-order item. For details, please contact us directly.

Type / Specifications

Process		Cat. No.	Approach Angle & Max. Depth of Cut () for 5000 Type	Rake Angle		Insert Cat. No.	Page
Applications	Surface Roughness			Axial Rake	Radial Rake		
For Roughing	25S	NRV 4000 Type		-5°	-6°	SNC43MW	H238
		NRV 5000 Type				SNC535	
Roughing / Finishing	18S	DPV 4000 Type		+10°	+5°	SDCN42R/L	H239
		DPV 5000 Type				SDCN53R/L	
Finishing	12.5S	NFV 4000 Type		-5°	-6°	6SS43M	H240
		NFV 5000 Type				6SS53M	
Roughing/ Finishing of Light Alloy	12.5S	APV 5000 Type		+18°	-2°	SDC53R/L	H241

Recommended Cutting Conditions

Cutting Conditions

Cat. No.	Insert Cat. No.	Insert Grade	Cutting Conditions (Min. - Optimum - Max.)		
			v_c (m/min)	f_z (mm/t)	a_p (mm)
NRV 4000 Type	SNC43MW	ACK200	80 - 100 - 120	0.1 - 0.15 - 0.2	up to 3
NRV 5000 Type	SNC535	ACK200	80 - 100 - 120	0.1 - 0.15 - 0.2	up to 3
DPV 4000 Type	SDCN42R/L	G10E	80 - 100 - 120	0.1 - 0.15 - 0.2	up to 3
DPV 5000 Type	SDCN53R/L	G10E	80 - 100 - 120	0.1 - 0.15 - 0.2	up to 5
NFV 4000 Type	6SS43M	H10E	120 - 160 - 200	0.1 - 0.15 - 0.2	up to 0.5
NFV 5000 Type	6SS53M	H10E	120 - 160 - 200	0.1 - 0.15 - 0.2	up to 0.5
APV 5000 Type	SDC53R/L	H1	< 400	0.1 - 0.20 - 0.3	up to 3

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Cutting Edge Reference System

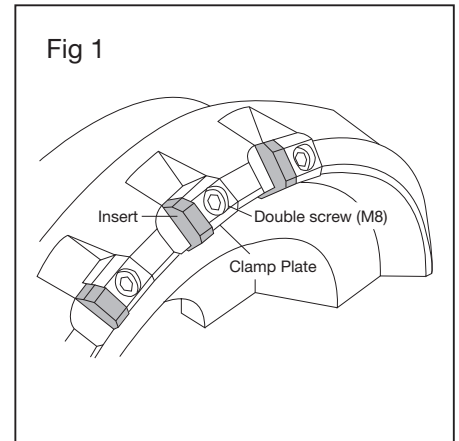


General Features

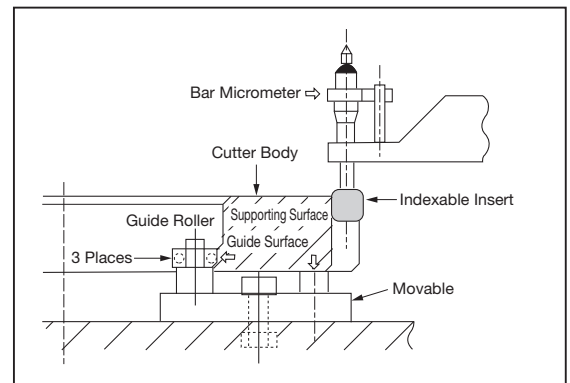
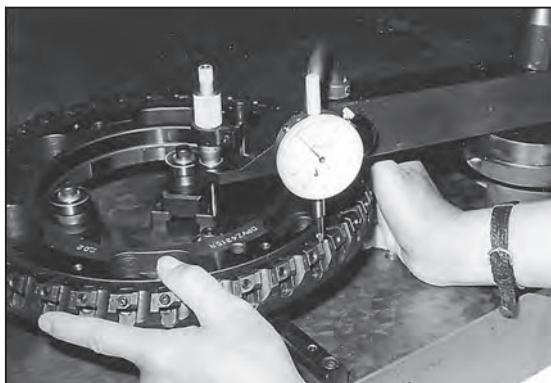
Conventional indexable cutters are designed to position and clamp two or three faces of the insert with locators, etc. The cutting edge reference cutter, on the other hand, retains the insert only with a clamp plate. (See Fig 1) This system is adopted for our entire high-feed cutter series.

Features of the Cutting Edge Reference Cutter

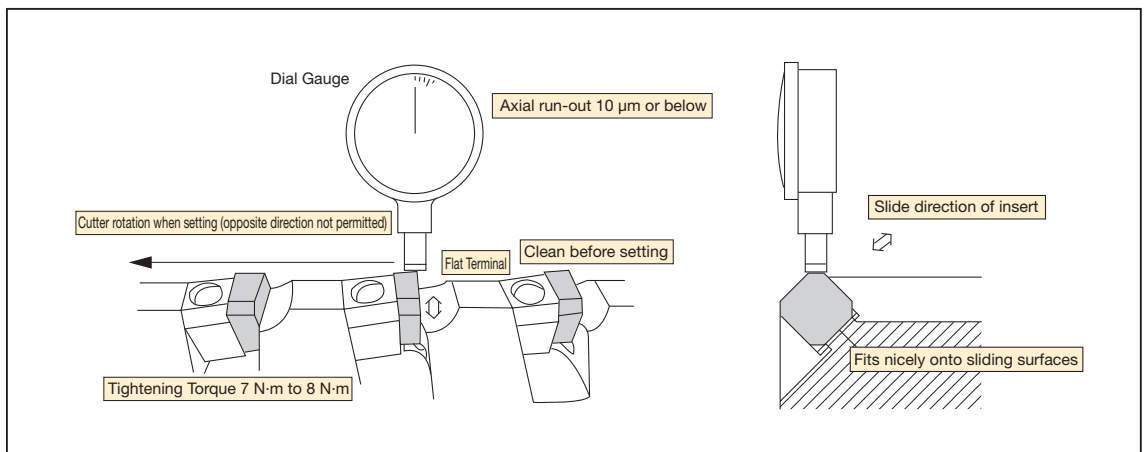
- Axial runout of the inserts is kept within 5 to 10 μm to ensure stable surface roughness and longer tool life.
- Simple design with fewer parts compared to the locator type facilitates cleaning the typical cast iron machining dirt and is comparatively inexpensive.
- Fewer parts allow high-density cutter design, higher machining efficiency and longer tool life.



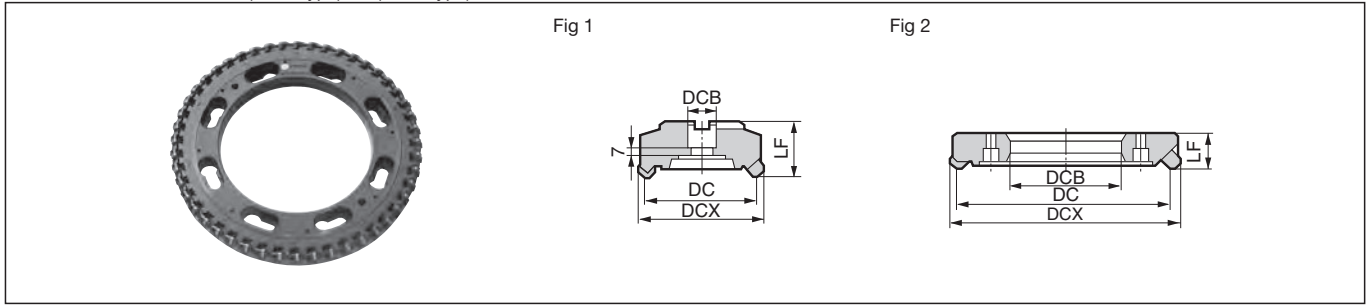
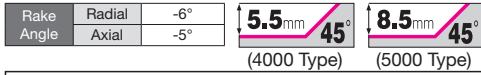
Application of a special assembly jig (as shown in the figure below) is recommended to accurately assemble the cutting edge reference cutter.



When mounting (assembling) the inserts, pay careful attention to the points noted below in .



NRV 4000/5000 Type



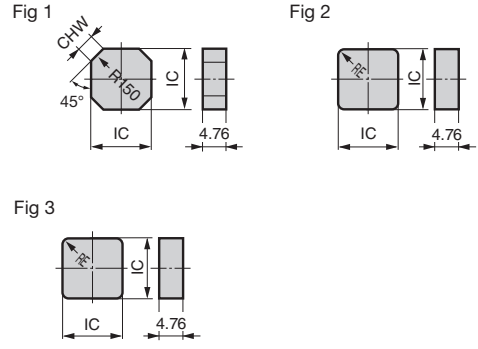
Body

Classification	Cat. No.	Stock		Dia. DC	Max. Dia. DCX*	Hole Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
		R	L							
F Type	NRV○100QR/L			100	112(118)	31.75	60	10	2.7	1
	○125QR/L			125	137(143)	38.1	60	14	3.8	1
	○160QR/L			160	172(177)	50.8	60	18	6.3	1
2-piece type	NRVZ○200R/L			200	212(218)	80	40	24	5.8	2
	○250R/L			250	262(268)	120	40	30	9.0	2
	NRVZ○315R/L			315	326(332)	180	40	36	12.5	2
	○355R/L			355	366(372)	220	40	42	15.5	2
	NRVZ○400R/L			400	411(417)	250	40	48	18.8	2
	○450R/L			450	461(467)	300	40	54	22.0	2

Inserts are sold separately.
 Put 4 or 5 in "O" in the catalogue number.
 Refer to page H242 for special arbors for the type of cutters shown in Fig 1.
 Refer to page H242 for dedicated adapters for the type of cutters shown in Fig 2.
 * marked dimensions in () are for the 5000 type.

Insert

Grade Classification	Coated Carbide		Cemented Carbide	Dimensions (mm)						
	High-speed/Light	General-purpose		Inscribed Circle IC	Chamfer CHW	Corner Radius RE	Fig	Applicable Cutter		
Process	High-speed/Light	General-purpose	Roughing							
Cat. No.	ACK200	ACK300	G10E							
SNC 43MW			●	12.70	3.0	—	1	NRV4000		
SNC 433				12.70	—	1.2	2	NRV4000		
434				12.70	—	1.6	2	NRV4000		
435				12.70	—	2.0	2	NRV4000		
436				12.70	—	2.4	2	NRV4000		
SNC 535				15.875	—	2.0	3	NRV5000		
SNMN 432			●	12.70	—	0.8	3	NRV4000		
433	●	●		12.70	—	1.2	3	NRV4000		
434				12.70	—	1.6	3	NRV4000		
435				12.70	—	2.0	3	NRV4000		
436				12.70	—	2.4	3	NRV4000		



Recommended Cutting Conditions H236

Parts

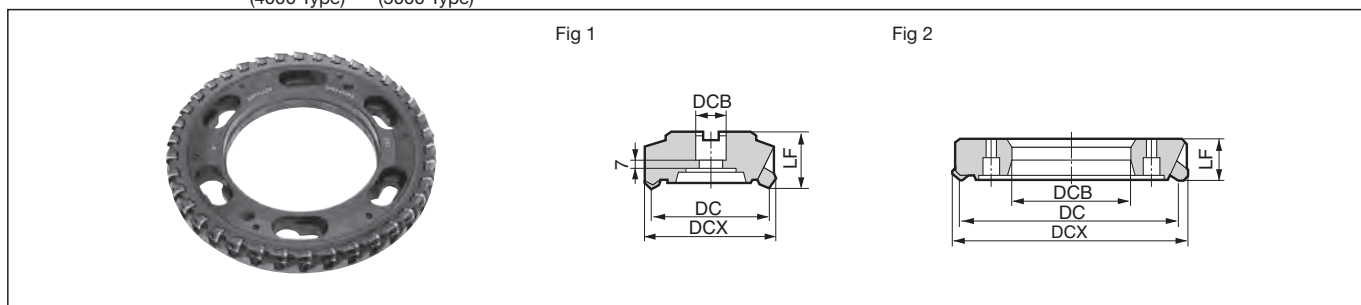
Applicable Cutters	Clamp Plate		Double Screw	Wrench	Anti-seizure Cream	Jig
	ø160 and below	ø200 and above				
NRV(Z) 4000R Type	NW41RR	NW42RR	WB6-20	TH030	SUMI-P	· Arbor for F Type · Adapter for 2-piece type
NRV(Z) 4000L Type	NW41RL	NW42RL				
NRV(Z) 5000R Type	NW51R	NW52R	WV6-20			
NRV(Z) 5000L Type	NW51L	NW52L				

Milling Cutters (Special Purpose)
 H
 Goal Mill
 High-Feed
 Quick Change

DPV 4000/5000 Type



Rake Angle	Radial	5°		
	Axial	10°		



Body

Classification		Cat. No.	Stock	Dia. DC	Max. Dia. DCX*	Hole Dia. DCB	Height LF	Number of Teeth 4000	Number of Teeth 5000	Weight (kg)	Fig
			R L								
Inch	F Type	DPV○100QR/L		100	107.2(109.6)	31.75	60	12	10	2.6	1
		○125QR/L		125	131.5(133.6)	38.1	60	16	14	3.6	1
		○160QR/L		160	165.8(176.6)	50.8	60	20	18	6.0	1
	2-piece type	DPVZ○200R/L		200	206.5(208)	80	40	26	24	5.5	2
		○250R/L		250	256 (258)	120	40	32	32	9.0	2
		○315R/L		315	322.5(323)	180	40	38	36	12.0	2
		○355R/L		355	361.5(363)	220	40	44	42	15.0	2
	○400R/L		400	406.5(408)	250	40	50	48	17.8	2	
	○450R/L		450	456.5(458)	300	40	56	54	20.8	2	

Inserts are sold separately.

Put 4 or 5 in "○" in the catalogue number.

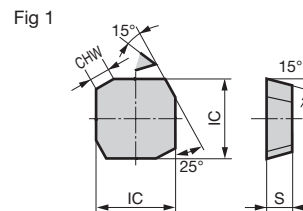
Refer to page H242 for special arbors for the type of cutters shown in Fig 1.

Refer to page H242 for dedicated adapters for the type of cutters shown in Fig 2.

* marked dimensions in () are for the 5000 type.

Insert

Grade Classification		Coated Carbide	Cemented Carbide					
Process	High-speed/Light	K						
	General-purpose	K						
	Roughing	K						
Cat. No.	ACK200	ACK300	H10E	Inscribed Circle IC	Thickness S	Chamfer CHW	Applicable Cutter	Fig
SDCN 42R			●	12.70	3.18	3.5	DPV4000R	1
42L			●	12.70	3.18	3.5	DPV4000L	1
SDCN 53R			●	15.875	5.0	5.0	DPV5000R	1
53L			●	15.875	5.0	5.0	DPV5000L	1



Recommended Cutting Conditions H236

Parts

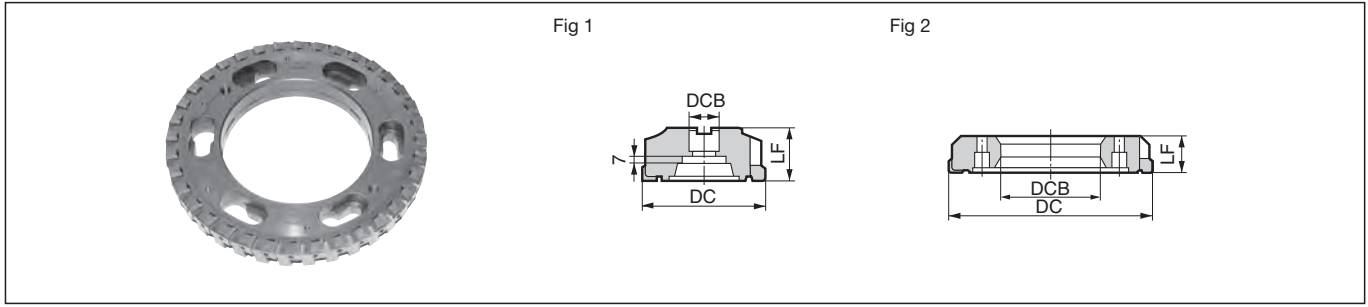
Applicable Cutters	Clamp Plate		Double Screw	Wrench	Anti-seizure Cream	Jig
	ø160 and below	ø200 and above				
DPV(Z) 4000R Type	HTW40R	HTW41R	WB6-20	TH030	SUMI-P	· Arbor for F Type · Adapter for 2-piece type
DPV(Z) 4000L Type	HTW40L	HTW41L				
DPV(Z) 5000R Type	HTW50R	HTW51R	WB6-20			
DPV(Z) 5000L Type	HTW50L	HTW51L				

NFV 4000/5000 Type



Rake Angle	Radial	-6°
	Axial	-5°

0.5mm	90°
-------	-----



Body

Classification	Cat. No.	Stock		Dia. DC	Hole Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
		R	L						
F Type	NFV○100QR/L			100	31.75	60	10	2.6	1
	○125QR/L			125	38.1	60	14	3.9	1
	○160QR/L			160	50.8	60	18	6.3	1
2-piece type	NFVZ○200R/L			200	80	40	24	5.3	2
	○250R/L			250	120	40	30	9.0	2
	○315R/L			315	180	40	36	11.3	2
	○355R/L			355	220	40	42	14.0	2
	○400R/L			400	250	40	48	16.5	2
	○450R/L			450	300	40	54	21.0	2

Inserts are sold separately.
 Put 4 or 5 in "○" in the catalogue number.
 Refer to page H242 for special arbors for the type of cutters shown in Fig 1.
 Refer to page H242 for dedicated adapters for the type of cutters shown in Fig 2.

Insert

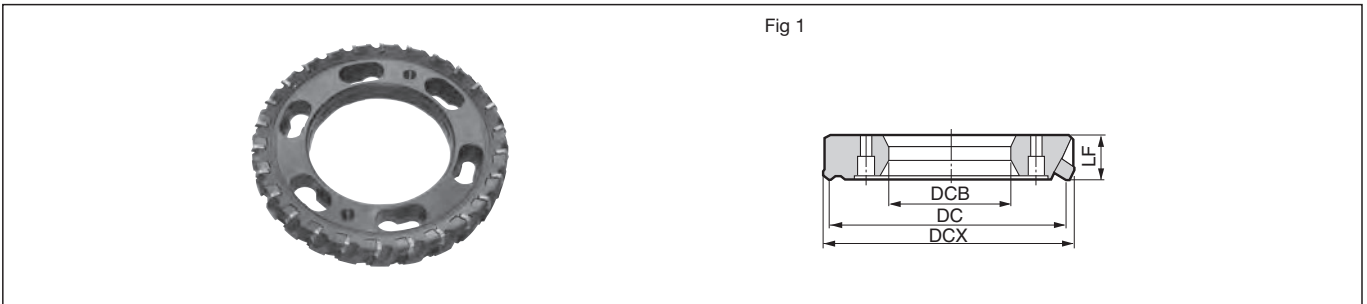
Grade Classification	Carbide	Dimensions (mm)				
High-speed/Light						
Process	General-purpose					
	Roughing					
Cat. No.	H10E	Inscribed Circle IC	Thickness S	Applicable Cutter	Fig	
SNEF 43W	●	12.70	4.76	NFV4000	1	
6SS 43M	●	12.70	4.76	NFV4000	2	
SNEF 53W	●	15.875	4.76	NFV5000	1	
53WT	●	15.875	4.76	NFV5000	1	
6SS 53M	●	15.875	4.76	NFV5000	2	
SNEN 535W	●	15.875	4.76	NFV5000	3	

Recommended Cutting Conditions H236

Parts

Applicable Cutters	Clamp Plate		Double Screw	Wrench	Anti-seizure Cream	Jig
	ø160 and below	ø200 and above				
NFV(Z) 4000R Type	NW41FR	NW42FR	WB6-20	TH030	SUMI-P	· Arbor for F Type · Adapter for 2-piece type
NFV(Z) 4000L Type	NW41FL	NW42FL				
NFV(Z) 5000R Type	NW51R	NW52R				
NFV(Z) 5000L Type	NW51L	NW52L				

Rake Angle	Radial	-2°	
	Axial	18°	



Body

Dimensions (mm)

Classification	Cat. No.	Stock		Dia. DC	Max. Dia. DCX	Hole Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
		R	L							
Inch 2-piece type	APVZ 5200R/L			200	211	80	40	18	7.0	1
	5250R/L			250	261	120	40	22	10.8	1
	5315R/L			315	326	180	40	26	13.7	1
	5355R/L			355	366	220	40	32	16.3	1
	5400R/L			400	411	250	40	36	20.0	1
	5450R/L			450	461	300	40	40	23.6	1

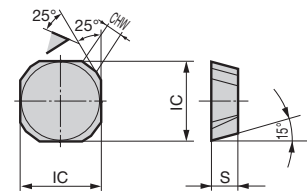
Inserts are sold separately.

Insert

Dimensions (mm)

Grade Classification	Cemented Carbide		Cermet							
	High-speed/Light	General-purpose		P	P					
Process										
	High-speed/Light									
	General-purpose									
	Roughing									
Cat. No.	A30N	H1	T250A	Inscribed Circle IC	Thickness S	Chamfer CHW	Applicable Cutter	Fig		
SDC 53R		●		15.88	4.76	2.5	APV5000R	1		
53L		●		15.88	4.76	2.5	APV5000L	1		
53TR	●			15.88	4.76	2.5	APV5000R	1		
53TL				15.88	4.76	2.5	APV5000L	1		
53TR-R				15.88	4.76	2.5	APV5000R	1		
SDCH 53TR	●			15.88	4.76	2.5	APV5000R	1		
53TR-R				15.88	4.76	2.5	APV5000R	1		

Fig 1



Recommended Cutting Conditions H236

Parts

Applicable Cutter	Clamp Plate ø200 and above	Double Screw	Wrench	Anti-seizure Cream	Jig
	APVZ5500R Type APVZ5500L Type	AW52R AW52L	WB6-20	TH030	

QC System

Milling Cutters
(Special Purpose)

H

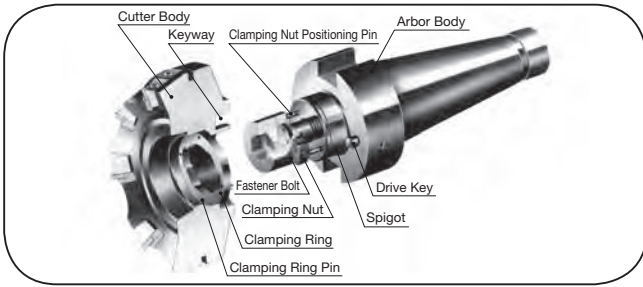
Goal Mill

High-Feed

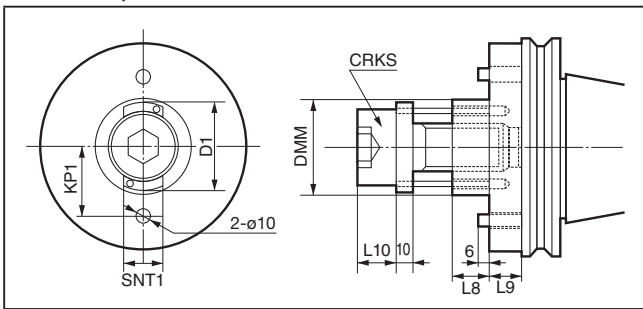
Quick Change

Quick-F Series

Structure



Arbor specifications



Dimensions (mm)

Cat. No.	Shank DMM	Bolt D1	Screw CRKS	Keyway Width SNT1	Length L8	Length L9	Length L10	Key position KP1
○○○○QF4R/L	31.75	30.75	M14 P2.0	18	22	22	13	27.5
○○○○QF5R/L	38.1	37.1	M16 P2.0	20	20	24	14	27.5
○○○○QF6R/L	50.8	49.8	M20 P2.5	24	20	30	16	34

Enter the arbor taper code in "O" above. (Example: BT50-QF4R)

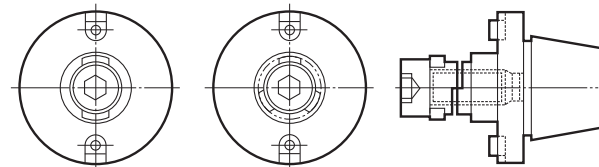
Features and Applications

- (1) Requires less time for mounting and removing.
- (2) Can be used with cutter diameters of 4" (ø100) to 6" (ø160).

Quick-NF Series (Applicable to cutter diameters of 3" (ø80) to 6" (ø160))

* Made-to-order item. Please contact us directly when ordering.

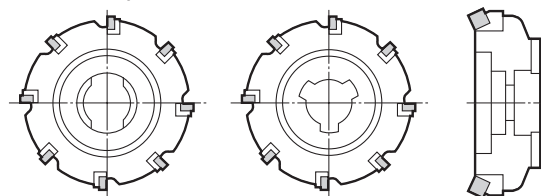
Arbor specifications



QNF3R/L to QNF5R/L Shape

QNF6R/L Shape

Cutter specifications

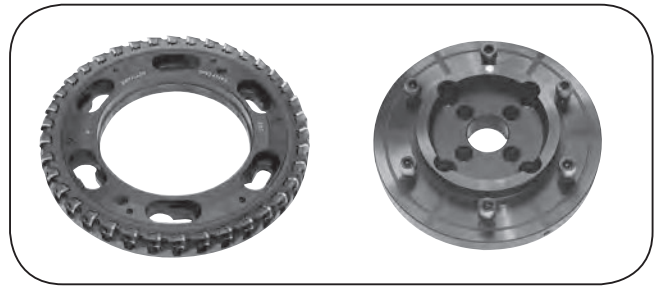


3 to 5 Inch

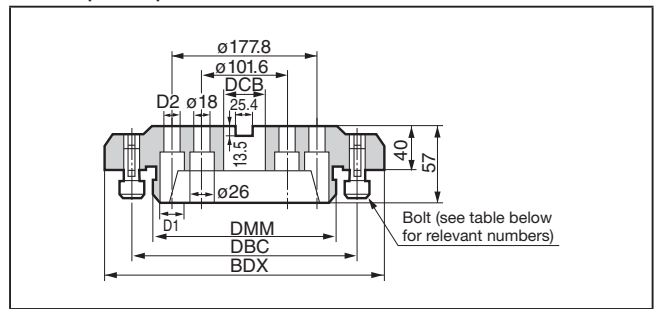
6 Inch

Two-piece Cutter with Slotted Hole

Appearance of Slotted Hole Type Body



Adapter specifications



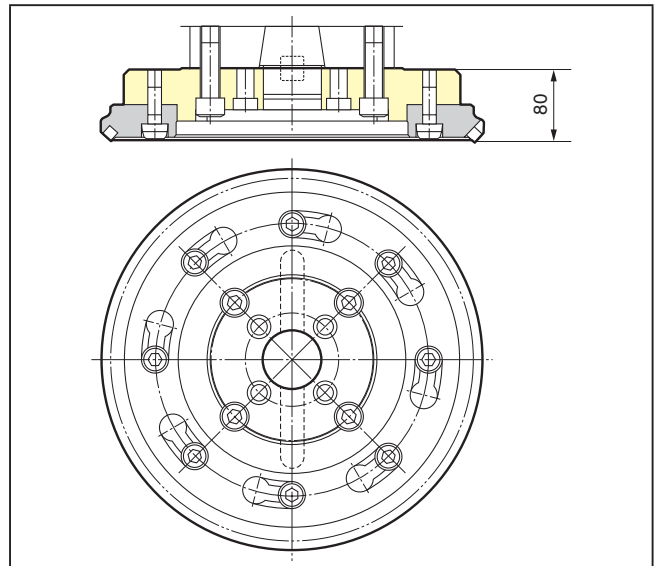
Dimensions (mm)

Cat. No.	Shank DMM	Maximum O.D. BDX	Hole Dia. DCB	Bolt D1	Bolt D2	Hole position DBC	No. of Bolts n	Cutter Size (mm)
QAD 200	80	180	47.625	—	—	120	4	ø200
250	120	230	47.625	—	—	170	4	ø250
315	180	295	47.625	32	22	230	6	ø315
355	220	335	63.5	32	22	270	6	ø355
400	250	370	63.5	32	22	300	6	ø400
450	300	420	63.5	32	22	350	6	ø450

Features and Applications

- (1) Lightweight ring cutter body.
- (2) Cutter can be changed without removing the bolt.
- (3) A tapered spline system is used to connect the adapter to the cutter.
- (4) Can be used for cutters over ø200.
- (5) Effective when mounting several cutter body sizes on the same adapter.

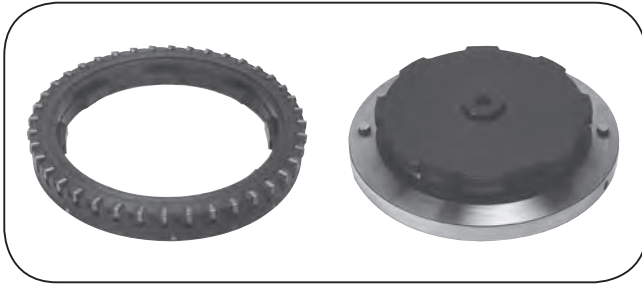
Cutter Mounting Diagram



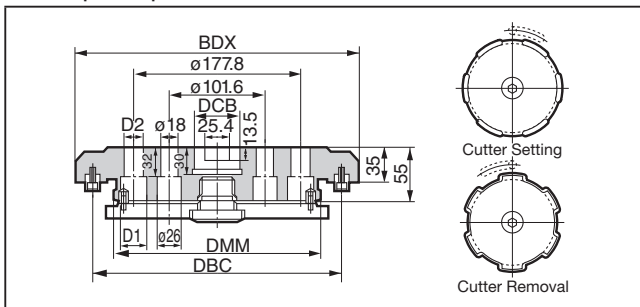
Applicable Cutters for QC-System

Two-piece Cutter with Centre Bolt

Appearance



Adapter specifications

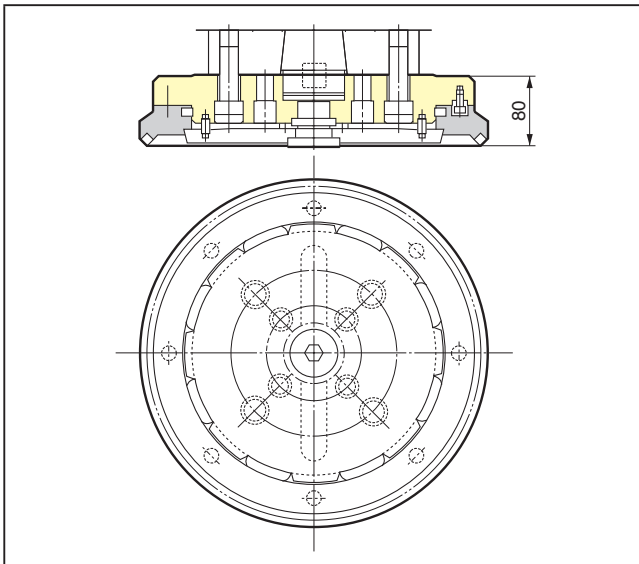


Dimensions (mm)							
Cat. No.	Shank DMM	Maximum O.D. BDx	Hole Dia. DCB	Bolt D1	Bolt D2	Hole position DBC	Cutter Size (mm)
NQAD 200	105	180	47.625	—	—	155	ø200
250	155	240	47.625	—	—	205	ø250
315	220	305	47.625	32	22	270	ø315
355	260	345	63.5	32	22	310	ø355
400	305	390	63.5	32	22	355	ø400
450	355	440	63.5	32	22	405	ø450

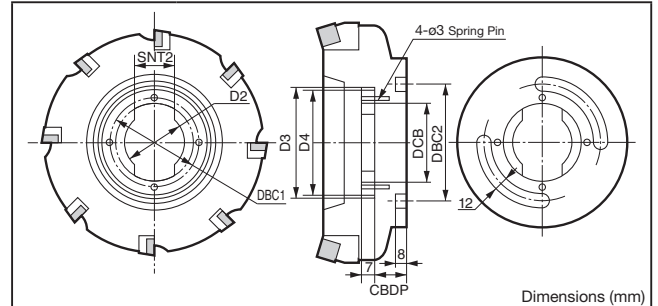
Features and Applications

- (1) With one clamping bolt, the total weight of the two-piece cutter is lighter.
- (2) Cutter can be replaced quickly - simply turn one bolt halfway to mount and remove.
- (3) A tapered spline system is used to connect the adapter to the cutter.
- (4) Can be used for cutters over ø200.

Cutter Mounting Diagram



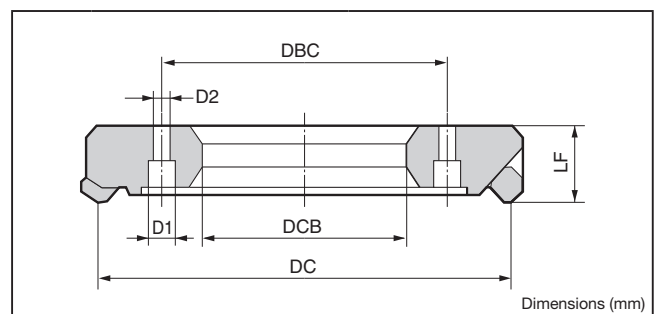
Quick-F QF Type Cutter Specifications



Cutter Size (mm)	Hole Dia. DCB	Bolt D2	Bolt D3	Diameter D4	Hole position DBC1	Hole position DBC2	Keyway Width SNT2	Mounting Depth CBDP
ø100	31.75	22	43.75	43.5	37.75	55	20	24
ø125	38.1	29	50.1	49.8	44.1	55	22	22
ø160	50.8	41	62.8	62.5	56.8	68	26	22

This design applies to all F Type high-feed cutters (→ H238 to H241). Conventional cutter can be easily adapted to quick change through slight modification.

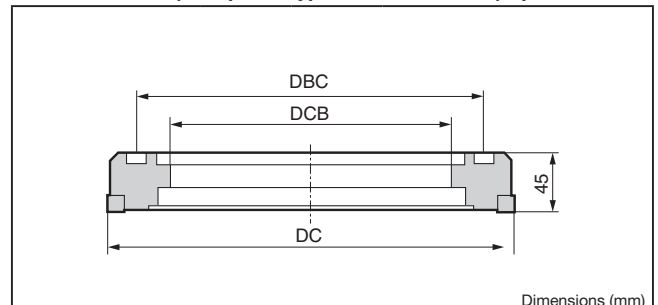
QAD Cutter (Two-piece Type) Specifications



Cutter Size (mm)	Dia. DC	Hole Dia. DCB	Bolt D1	Bolt D2	Hole position DBC	Height LF	No. of Bolts n	Adapter Cat. No.
ø200	200	80	24	14	120	40	4	QAD200
ø250	250	120	30	18	170	40	4	QAD250
ø315	315	180	30	18	230	40	6	QAD315
ø355	355	220	30	18	270	40	6	QAD355
ø400	400	250	30	18	300	40	8	QAD400
ø450	450	300	30	18	350	40	8	QAD450

This design applies to all two-piece type high-feed cutters (→ H238 to H241).

NQAD Cutter (Two-piece Type with Centre Bolt) Specifications



Cutter Size (mm)	Dia. DC	Hole Dia. DCB	Hole position DBC	Adapter Cat. No.
ø200	200	105	155	NQAD200
ø250	250	155	205	NQAD250
ø315	315	220	270	NQAD315
ø355	355	260	310	NQAD355
ø400	400	305	355	NQAD400
ø450	450	355	405	NQAD450

This design applies to all two-piece type high feed cutters with a centre bolt (→ H238 to H241).

